

### SUPPORT FOR THE AMENDMENTS

This Amendment amends the specification to correct typographical errors; amends Claims 1-18; and adds new Claim 19. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 19 is found in Claim 1. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-19 will be pending in this application. Claim 1 is independent.

### REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Applicants thank the Examiner for the courtesies extended to their representative during the personal interview on March 18, 2010.

As discussed during the personal interview, the present invention is directed to a process for the continuous manufacture of an austenitic stainless steel strip having a dull surface appearance.

Conventionally an austenitic stainless steel strip is given either a bright surface appearance or a dull surface appearance according to the application for which the strip is intended. The bright surface appearance is achieved by heating the strip in a bright annealing furnace in which there is a reducing atmosphere. The dull surface appearance is achieved by heating the strip in an oxidizing atmosphere, which forms an oxide on the strip, and then pickling the strip to remove the oxide. Owing to the specialization of the bright annealing and the oxidative annealing/pickling installations, it is difficult to quickly convert from one installation to another in response to changes in customer demand for bright or dull finishes on austenitic stainless steel strip. Specification at page 1, line 9 to page 2, line 14.

The present invention provides a process that allows an austenitic stainless steel strip that has been heated in a bright annealing furnace to be quickly and easily given a dull surface appearance. In the process a small amount of moisture is present in the reducing gas of the bright annealing furnace, so that the gas has a dew point above  $-15^{\circ}\text{C}$ . The moisture causes a thin oxide layer to form on the austenitic stainless steel strip. Pickling the austenitic stainless steel strip to remove the thin oxide layer leaves the desired dull surface appearance.

The term "dew point" is defined as "the temperature at which air is saturated with moisture, or in general the temperature at which a gas is saturated with respect to a condensable component". Hawley's Condensed Chemical Dictionary, 12th edition, page 358 (copy attached). The expression "gas having a dew point above  $-15^{\circ}\text{C}$ " is understood to mean a gas whose moisture content is greater than 2000 ppm of water. Specification at page 5, lines 5-6. Thus, a gas having a "dew point above  $-15^{\circ}\text{C}$ " is a gas containing a condensable amount of water.

Claims 1-5, 8-13 and 15-17 are rejected under 35 U.S.C. 103(a) over U.S. Patent No. 5,976,282 ("Fukuda") in view of U.S. Patent No. 5,702,539 ("Schoen").

Claims 6-7 are rejected under 35 U.S.C. 103(a) over Fukuda in view of Schoen and further in view of U.S. Patent No. 6,109,336 ("Pronk").

Claims 14 and 18 are rejected under 35 U.S.C. 103(a) over Fukuda in view of Schoen and further in view of U.S. Patent Application Publication No. 2004/0079398 ("Koza").

Fukuda discloses an austenite stainless steel plate having excellent surface brightness, without polishing after finishing annealing in a combustive gas atmosphere and pickling for descaling the strip. Fukuda at abstract. Fukuda discloses that conventionally finish annealing is carried out in a strongly reducing atmosphere containing  $\text{H}_2$  and  $\text{N}_2$  (bright annealing process) or in a combustive gas atmosphere. Fukuda at column 1, lines 28-45.

Fukuda teaches away from the bright annealing process as costly. Fukuda at column 1, lines 36-37. Instead, Fukuda focused on annealing in a combustive gas atmosphere. Fukuda discloses in Examples 1-3 that the combustive gas atmosphere contains 3 vol% O<sub>2</sub>, 7 vol% CO<sub>2</sub>, 20 vol% moisture and 70 vol% N<sub>2</sub>. Fukuda's combustive gas atmosphere contains 132,000 ppm by mass of H<sub>2</sub>O.

However, Fukuda is silent about H<sub>2</sub>O in a bright annealing process atmosphere containing H<sub>2</sub> and N<sub>2</sub>.

Furthermore, Fukuda fails to suggest annealing in a furnace in a reducing atmosphere having a moisture content given by a dew point above -15°C.

Moreover, Fukuda fails to suggest annealing in a furnace in a combustive gas atmosphere containing less than 1% oxygen by volume and less than 1% air by volume.

Thus, Fukuda fails to suggest the independent Claim 1 limitations of "subjecting a cold-rolled austenitic stainless steel strip to a heat treatment in a bright annealing furnace inside which a flushing gas chosen from inert or reducing gases and having a **dew point above -15°C** circulates, said flushing gas comprising **less than 1% oxygen by volume and less than 1% air by volume**".

The specification at Table 2 shows that chemical pickling of strips that have undergone conventional bright annealing, without a small amount of water in the bright annealing atmosphere as in the present invention, does not result in the desired dull appearance. Furthermore, the specification at Tables 3-6 shows that a bright annealing furnace must have enough moisture present (Dew Point above -15°C) to form a thin oxide layer so that subsequent pickling can leave the desired dull surface appearance.

Schoen, Pronk and Koza fail to remedy the deficiencies of Fukuda. Schoen is cited for disclosing a cooling rate. Office Action at page 4, lines 4-9. Pronk is cited against dependent Claims 6-7 for disclosing an induction furnace and a resistance furnace. Office

Action at page 7, lines 6-9; 16-19. Koza is cited against dependent Claims 14 and 18 for disclosing that strip can be sprayed with pickling solution for sufficient time to remove scale. Office Action at page 8, lines 8-20. However, Schoen, Pronk and Koza fail to suggest that Fukuda's strongly reducing atmosphere containing H<sub>2</sub> and N<sub>2</sub> should contain H<sub>2</sub>O or that Fukuda's combustive gas atmosphere should contain less than 3 vol% O<sub>2</sub>.

Because the cited prior art fails to suggest all the limitations of independent Claim 1, the prior art rejections should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 07/09)

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, L.L.P.  
Norman F. Oblon



Corwin P. Umbach, Ph.D.  
Registration No. 40,211

Enclosed: Hawley's Condensed Chemical Dictionary, 12th edition, page 358